

CLAIMS

1. A method for reducing scan power consumption when unloading and restoring content of a processor having one or more scan chains, the method comprising the steps of:

5 partitioning at least one scan chain into a plurality of segments; and

scanning one of the plurality of segments at a time.

2. The method of Claim 1, wherein the plurality of  
10 segments comprises one or more segments of a predetermined length and an offset segment.

3. The method of Claim 2, wherein the offset segment is  
used to handle variations in length between the one or more  
15 scan chains.

4. The method of Claim 1, wherein the step of scanning  
one of the plurality of segments at a time comprises the steps  
of:

20 providing enough clocking to scan all bits in the one of  
the plurality of segments; and

keeping track of the predetermined length, an order of  
the segments, and the offset segment.

25 5. The method of Claim 1, further comprising the step  
of scanning any remaining one or more of the plurality of  
segments one at a time to complete scanning the at least one  
scan chain.

6. The method of Claim 1, further comprising the steps of:

partitioning any remaining one or more of the one or more scan chains into a plurality of segments; and

5 scanning the plurality of segments one at a time.

7. An apparatus for reducing scan power consumption when unloading and restoring content of a processor having one or more scan chains, the apparatus comprising:

10 means for partitioning at least one scan chain into a plurality of segments; and

means for scanning one of the plurality of segments at a time.

15 8. The apparatus of Claim 7, wherein the plurality of segments comprises one or more segments of a predetermined length and an offset segment.

9. The apparatus of Claim 8, wherein the offset segment  
20 is used to handle variations in length between the one or more scan chains.

10. The apparatus of Claim 7, wherein the means for scanning one of the plurality of segments at a time comprises:

25 means for providing enough clocking to scan all bits in the one of the plurality of segments; and

means for keeping track of the predetermined length, an order of the segments, and the offset segment.

11. The apparatus of Claim 7, further comprising means for scanning any remaining one or more of the plurality of segments one at a time to complete scanning the at least one scan chain.

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12. The apparatus of Claim 7, further comprising:  
partitioning any remaining one or more of the one or more scan chains into a plurality of segments; and  
scanning the plurality of segments one at a time.

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13. A computer program product for reducing scan power consumption when unloading and restoring content of a processor having one or more scan chains, the computer program product having a medium with a computer program embodied thereon, the computer program comprising:

15 computer program code for partitioning at least one scan chain into a plurality of segments; and  
computer program code for scanning one of the plurality of segments at a time.

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14. The computer program product of Claim 13, wherein the plurality of segments comprises one or more segments of a predetermined length and an offset segment.

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15. The computer program product of Claim 14, wherein the offset segment is used to handle variations in length between the one or more scan chains.

16. The computer program product of Claim 13, wherein  
30 the computer program code for scanning one of the plurality of

segments at a time comprises:

computer program code for providing enough clocking to scan all bits in the one of the plurality of segments; and

5 computer program code for keeping track of the predetermined length, an order of the segments, and the offset segment.

17. The computer program product of Claim 13, the computer program further comprising computer program code for  
10 scanning any remaining one or more of the plurality of segments one at a time to complete scanning the at least one scan chain.

18. The computer program product of Claim 13, the  
15 computer program further comprising:

computer program code for partitioning any remaining one or more of the one or more scan chains into a plurality of segments; and

20 computer program code for scanning the plurality of segments one at a time.

19. Scan circuitry for reducing scan power consumption when unloading and restoring content of a processor having one or more scan chains, the scan circuitry comprising:

25 a scan structure comprising one or more scan chains, wherein at least one of the one or more scan chain is partitioned into a plurality of segments; and

a master controller coupled to the scan structure for scanning one of the plurality of segments at a time.

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20. The scan circuitry of Claim 19, further comprising an off-chip memory coupled to the master controller for storing unloaded content of the processor.